

REMARKS

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office Action, and amended as necessary to more clearly and particularly describe the subject matter which Applicant regards as the invention.

The abstract of the disclosure was objected to because it is longer than 150 words. The abstract has been appropriately amended herein.

The drawings were objected to. The Examiner has required Fig. 1 to be designated by a legend such as --Prior Art--. Further, the drawings as filed did not include the reference number "155" mentioned on page 1, lines 22 and page 2, line 15. Fig. 1 has been amended accordingly to overcome the objection.

Claims 1, 3 and 4 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,724,486 to Shull et al. (hereinafter "Shull '486"). For the following reasons, the rejection is respectfully traversed.

Regarding claim 1, Shull '486 does not teach that "said first end surface is oriented so that said excitation beam *and the wavelength-converted beam reflected by said first mirror* are incident at roughly the Brewster's angle," as required. Likewise, Shull '486 does not teach a "wavelength-converted beam reflected by said second mirror," as required. The Examiner cites Fig. 1 of Shull '486 as teaching these limitations. Fig. 1 of Shull '486 illustrates the use of a nonlinear crystal (120) to frequency-double a fundamental beam (122) within the cavity to produce a single-frequency, harmonic beam (124). Thus, applying these teachings to claim 1 of the present application, the fundamental beam (122) must be interpreted as the excitation beam, and the harmonic beam (124) must be interpreted as the wavelength-converted beam. Shull '486 also teaches that the harmonic beam (124) is *transmitted through* (not reflected by) the cavity-end

mirror (104) and the cavity-fold mirror (see column 8, lines 52-65). The only other mirror shown in Fig. 1 is a cavity-end mirror (102) that is not in the path of the harmonic beam (124). Therefore, since the harmonic beam (124) is not reflected by any mirrors, Shull '486 fails to disclose a wavelength-converted beam *reflected* by said first mirror or said second mirror as required. Since every limitation of the claim is not taught by the reference, claim 1 is not anticipated by Shull '486.

Further, regarding claim 1, Shull '486 does not teach that "the polarization of said excitation beam and said wavelength-converted beam is *P-polarized* with respect to said first end surface." Shull '486 does not disclose the direction of polarization of the fundamental and harmonic beams (122, 124) relative to the crystal (120). Shull '486 does state that: "In the presently described embodiment, nonlinear crystal 120 is oriented for Type I phase matching, which means that *fundamental and harmonic beams 122 and 124 have orthogonal polarizations.*" Therefore, the fundamental and harmonic beams (122, 124) in the disclosed embodiment *cannot both* be P-polarized as required by claim 1. Shull '486 also states that "In other embodiments, Type II phase matching can be employed in which beams 122 and 124 have the same polarizations." However, Shull '486 is silent as to whether p-polarization, as opposed to s-polarization, would be used in such Type-II embodiments. Therefore, for these additional reasons, every limitation of the claim is not taught by the reference and thus, claim 1 is not anticipated by Shull '486.

Claims 3 and 4 each depend from claim 1 and therefore necessarily include all of the limitations of claim 1. Thus, for the same reasons as explained with regard to claim 1, claims 3 and 4 are not anticipated by Schull '486.

Claim 2 was rejected under 35 U.S.C. 103(a) over Shull '486 in view of U.S. Patent No. 5,036,220 to Byer et al. (hereinafter "Byer"). For the following reasons, the rejection is respectfully traversed.

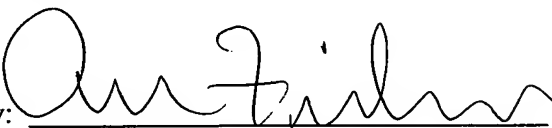
Claim 2 depends from claim 1 and thus for the same reason as explained above with regard to claim 1, every limitation of claim 2 is not taught by Shull '486. Further, there is no suggestion in Shull '486 to modify its teachings so that "the wavelength-converted beam reflected by said first mirror," as required. Further, there is no teaching or suggestion in Byer to make such a modification to Shull '486. Therefore, since every limitation of the claim is not taught or suggested by Shull '486, Byer or any combination thereof, claim 2 is patentable over the prior art of record.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. 35860.

Respectfully submitted,

PEARNE & GORDON LLP

By: 

Aaron A. Fishman – Reg. No. 44,682

1801 East 9th Street
Suite 1200
Cleveland, Ohio 44114-3108
(216) 579-1700

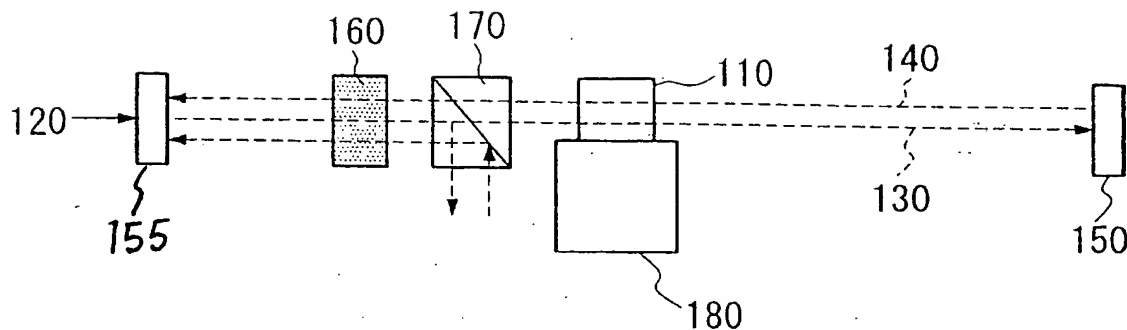
Date: December 2, 2005

Amendments to the Drawings

The attached sheet includes changes to Fig. 1 and replaces the original sheet with Fig. 1. In Fig. 1, the term –Prior Art– and the reference number 155 have been added.

Attachment: (1) Replacement sheet

(1) Annotated sheet showing changes



PRIOR ART

FIG. 1

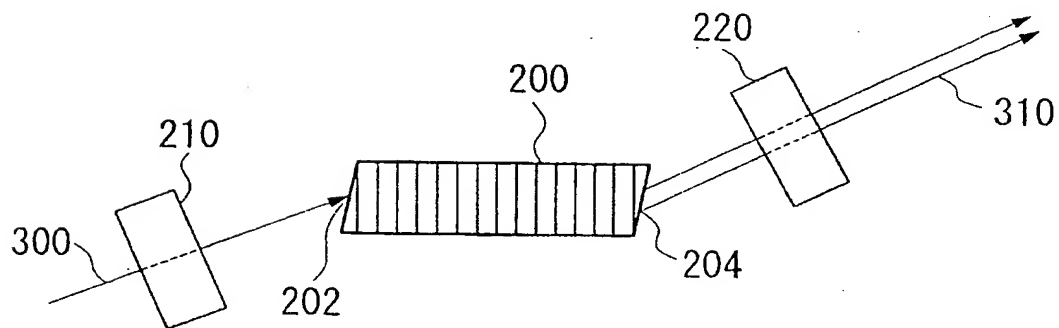


FIG. 2